

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-8 (canceled)

9. (currently amended) ~~A~~ An isolated thermostable ligase ~~according to claim 1~~, wherein the thermostable ligase has an amino acid sequence of SEQ. ID. NO: ~~No. 1~~.

10-47 (canceled)

48. (new) An isolated thermostable ligase, wherein the ligase is a mutant of a wild-type thermostable ligase having a histidine adjacent a KXDG motif, wherein the mutant thermostable ligase has a mutation in its amino sequence where the histidine adjacent the KXDG motif in the wild-type thermostable ligase is replaced with an arginine, and wherein X is any amino acid.

49. (new) The isolated mutant thermostable ligase according to claim 48, wherein the wild-type DNA ligase is selected from the group consisting of a ligase having an amino acid sequence of SEQ. ID. NO: 25, SEQ. ID. NO: 26, SEQ. ID. NO: 27, SEQ. ID. NO: 28, SEQ. ID. NO: 29, SEQ. ID. NO: 30, SEQ. ID. NO: 31, and SEQ. ID. NO: 32.

50. (new) An isolated mutant thermostable ligase, wherein the thermostable ligase is encoded by a DNA molecule having a nucleotide sequence of SEQ. ID. NO: 2.